Clean Air Task Force

June 5, 2006 meeting

NOx RACT Development Received Comments & Technical Issues

Presentation Outline

1. General comments
2. Rule framework
3. RACT cost-effectiveness
4. RACT control level
5. RACT and CAIR control comparison
6. Next Steps

General Comments

General Comments

- Allow for a case-by-case alternative determination
- Do not extend attainment date in Basic area unless necessary.
- EGUs
  - CAIR satisfies RACT
  - CAIR = RACT should not exempt from further RACM control
  - Utilities need certainty.
- RACM applies only to non-attainment area

Proposed Rule Framework

Rule framework

- RACT Requirement
  - Unit-by-unit
  - Emission limit (annual and seasonal, 30 day rolling avg.)
  - Combustion monitoring (CO & O2)
- NOx Monitoring and Compliance
  - EGUs = Total mass emissions (most stringent – Part 75 cems)
  - Non-EGUs = Emission rate (less stringent – Part 60 cems)
- Trading Provision (same as BART)
  - Facility averaging through adopting a mass cap for all similar sources (e.g. boilers).
  - Total mass emissions (most stringent – Part 75 cems)

Rule Framework - comments

- Combustion Monitoring
  - Useful but not PART 60 CO monitoring.
- Compliance Monitoring
  - Allow use of systems other than Part 60 CEMs.
  - Allow common stack monitoring
- Trading
  - Facility trading is supported
  - Do not require Part 75 monitoring.

RACT Control Level

RACT Control Level

- Initial assessment of NOx control options (WDNR, 03/06)

Source Category	**Control Level**	**Cost Effectiveness ($/ton NOx)**
Coal Boilers (> 250 mmbtu/hr)	80 - 90% Selective catalytic reduction	1,600 - 4,000
Coal Boilers (< 250 mmbtu/hr)	40 – 50% Selective non-catalytic reduction	1,500 – 5,000
Other Source Categories	30 - 50% Low NOx burners or mod.	500 - 2,500

RACT Control Level - comments

- Emission Limits
  - Limits and cost-effectiveness should account for recent installations of equipment.
  - NR 428 limits meet RACT
  - CAIR = RACT
- Control Equipment Application
  - Separate limits needed for fluidized bed and stoker boilers.
  - FB – SCR N/A; Stokers – SNCR N/A
  - Installations: SCR-24/30 months; Scrubbers-30/48 months, add 3 months by end of year. (added after pres.)

RACT Cost-Effectiveness

- Up to $1,300/ton: Comment
- Consider controls up to $10,000/ton: Clinton Adm. (RACT and Attainment)
- $3,000 - $3,500/ton: OTC RACT 1994
- Up to $1,300/ton: EPA Memo, 1994
- $2,000 – $19,000/ton: Texas NOx Programs
- $500/ton: CAIR I avg.; $1,300/ton CAIR II avg.

Comparison of CAIR and RACT Potential Control Levels

Significant Issues in Comparison

1. Total emission reduction potentially achieved in Wisconsin vs. Nationally.
2. Where controls occur in Wisconsin under each program.
3. Control level anticipated for RACT on a unit by unit basis.
4. Certainty of Control under each program.

Comparison of EGU Coal Boiler NOx Emissions

NOx Emission Case	Statewide			Non-Attainment Area		
	2002	2009	2015	2002	2009	2015
Base Emissions	88,056			41,782		
Planned Controls (1)		53,578	51,643		18,144	16,208
CAIR - Model Budget		37,973	32,311		19,453	16,552
CAIR - IPM (2)		50,530	46,592		18,144	14,205
Example RACT (3)		47,355	47,355		11,921	11,921

1) Planned Controls include We-Energies consent decree, Port Washington repower, and Alliant combustion initiative.
2) Controls based on IPM - LADCO/VISTA runs with planned controls incorporated into the base control assumptions
3) A surrogate RACT level based on 0.1 lbs/mmbtu for all units in the non-attainment area.

Major Points

- CAIR IPM does not meet CAIR Budget, Predicts additional SCR control on two units: Genoa-2009, Edge 4-2015
- Planned controls achieve major reductions but are subject to some uncertainty
- CAIR IPM places additional control in non-attainment area only by 2015.
- Example RACT is significantly lower in non-attainment area but higher statewide.

Control in Non-Attainment Area

Planned Controls in Non-Attainment Area			
Unit	**Control Equipment**	**Installation Date**	**Rate (lbs/mmbtu)**
Edge 3	Comb. Mod.	2005	0.30
Edge 4	Comb. Mod.	2005	0.26
Edge 5	Comb. Mod.	2009	0.13
Pleasant Prairie 1	SCR	2009	0.10
Pleasant Prairie 2	SCR	2005	0.10
Port Washington	repowered	2009	0.01
OaK Creek 5	SCR	2012	0.10
OaK Creek 6	SCR	2012	0.10
OaK Creek 7	SCR	2012	0.10
OaK Creek 8	SCR	2012	0.10
Valley 1	Comb. Mod.	2005	0.30
Valley 2	Comb. Mod.	2005	0.30

Control in Non-Attainment Area

Estimated Emission Rates (lbs/mmbtu) in Non-Attainment Area

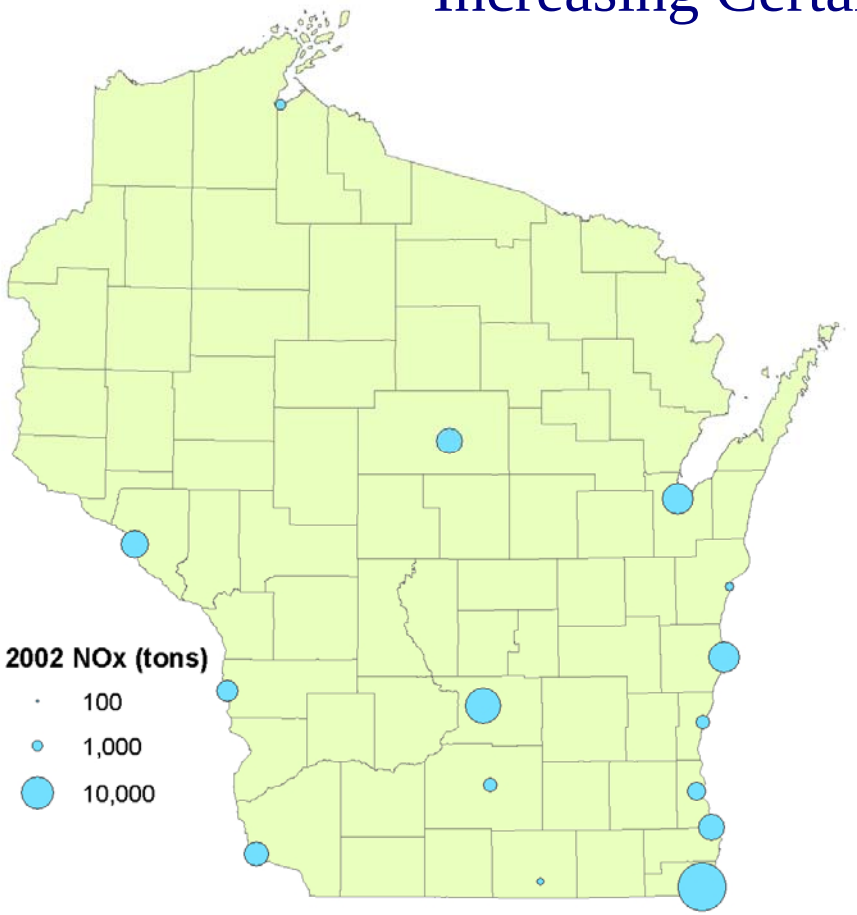
NOx Control Case	Alliant (NA-Area)		We-Energies	
	2009	2015	2009	2015
Planned Controls	0.20	0.20	0.13	0.11
Model Allocations	0.15	0.13	0.16	0.13
RACT Example	0.10	0.10	0.10	0.10

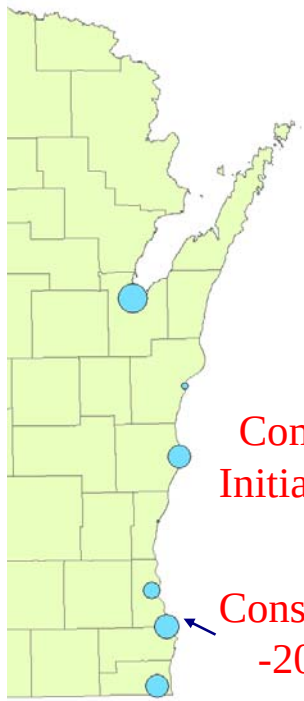
Major Points

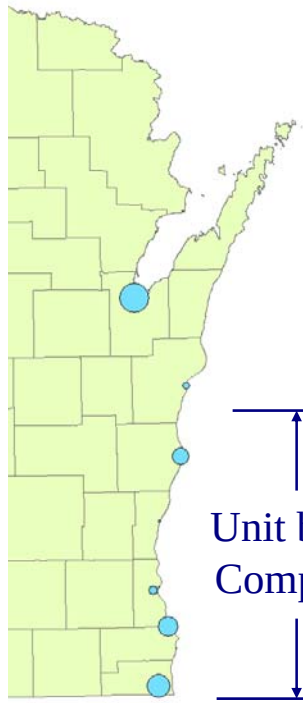
- Alliant is targeting signifigant reductions well beyond NR 428 limit of 0.28 lbs/mmbtu.
- Alliant units outside of NA area appear more cost-effective to control based on IPM costing factors.
- We-Energies planned controls is beyond Model Allocations.
- We-Energies planned controls achieves near example RACT levels, but not until 2015

Comparison of EGU Annual NOx Emissions

Increasing Certainty →







Base 2002 Planned-2009 0.1 lbs/mmbtu

Next Steps in the RACT Rule Development

Next Steps

- Continue work with stakeholders.
- Continue work on evaluation of RACT control levels.

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Geography – 8 hour designations